

Work Order ID 142912

Monday, March 21, 2016 2:26:32 PM

142912

Page 1

Item ID: D3537-1

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Wearpad

Start Date: 4/6/2016 Start Qty: 40.00

40

Cust Item ID:

Required Date: 4/21/2016 Req'd Qty: 40.00

40

Customer:

Reference:

Run Start ***NR1***

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop ***NR2***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3537	E

105		0.00							DAS 13 9-89
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105

Purchasing

Memo

Purchasing

ISSUE PO 31797
CUT PER DRWG D3537 REV.E

115

Receive & Inspect for Damage & Mat'l Certs 0.00

115

Packaging

Memo

Packaging

125

QC5- Inspect part completeness to step on W/O 0.00

125

QC

Memo

Quality Control

40

MAR 23 2016

40K SP/6-04-7

40

160412

P.T.O.

DQA:

Date: 16/07/08

WORK ORDER NON-CONFORMANCE / UPDATE



QA Close:

Date: 16/07/05

Work Order update only ☐

Work Order: <u>142912</u> Part No. <u>D3537-1</u> NCR No. <u>016-5894</u> <u>016-5895</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☒</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☒																																																	
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Date: <u>16-05-11</u>		Step #: <u>105</u>		QTY Effective: <u>40-39</u>		MRB (QSI042) Approval <u>5/16/05/11</u>																																																																	
Description Work Order Deviation <u>Dimension .220"x .375" is .203"x .365"</u> <u>P.C. supplier</u>				Disposition <u>1st fit perform after welding.</u> <u>with no issue</u> <u>use-as-is. (AS IS)</u> <u>1st part scrap. (scrap)</u> <u>2</u>				Completed By <u>PD/</u> <u>16-05-11</u> Lead hand / Supervisor Approval Verification <u>DAS</u> <u>38</u> <u>9-89</u> <u>MAY 16 2016</u> QC / QA Coordinator Approval <u>DAS</u> <u>38</u> <u>9-89</u> <u>MAY 16 2016</u>																																																															
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OTHER:																																																																							

Work Order ID 142912

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142912

Page 2

Item ID: D3537-1 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Wearpad
 Start Date: 4/6/2016 Start Qty: 40.00 ***40*** Cust Item ID:
 Required Date: 4/21/2016 Req'd Qty: 40.00 ***40*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *140* Brake NC Brake NC	Form as per dwg NC BRAKE Memo	0.00 0.03			DAS 30 9-89	40			APR 26 2016
150 *150* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.01				40	16-05-11	80	
160 *160* autoweld 1 Automated Welding 1	Weld per dwg & QSI004 4.5 Large Fab Memo ***SEE NOTE 8 FOR SURFACE BUILDUP*** 1- WELD AS PER DWG AND QSI004 4.5 FOR AUTOMATED WELDING USE 8259 HARDCOAT BATCH: <u>144444</u>	0.00 0.00				40	02/16/11		

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	
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Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____				
Misidentified ☐	Past Due ☐					

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Page 3

Item ID: D3537-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Wearpad

Start Date: 4/6/2016 Start Qty: 40.00

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40

Customer:

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.01

Quality Control

(40) 16.05.11 PD

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.01

Quality Control

(39) 16.05.11 PD

210

Identify as per dwg & Stock Location: FP-001

0.00

210

Packaging

Memo

0.01

Packaging

LOCATION : FP001

x39 d 16/05/15

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data ☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
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Substation ☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified ☐	☐	Past Due	☐				

Work Order ID 142912

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142912

Page 4

Item ID: D3537-1

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

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Required Date: 4/21/2016

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40

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220

QC21- Final Inspection - Work Order Release

0.00

220

QC

Memo

0.07

Quality Control

MCJ MAY 17 2016MCJ MAY 17 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
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Date : _____	Step #: _____	QTY Effective : _____	MRB (QSI042) Approval ☐
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Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

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Tribal Knowledge ☐	Rushing ☐																																																																				
LOA ☐	Product Improvement ☐																																																																				
Substation ☐	Process Improvement ☐																																																																				
Past Expiry Date ☐	Manufacturing Process ☐																																																																				
Misidentified ☐	Past Due ☐																																																																				
Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																																																																		
Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																																																																		
Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																																																																		
Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																																																																		
Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																																																																		
Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																																																																		
Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																																																																		
Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																																																																		
Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																																																																		
Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																																																																		
OTHER : ☐																																																																					

Picklist Print

Monday, March 21, 2016 2:26:31 PM

Page 1

Work Order ID: 142912

142912

Parent Item: D3537-1

D3537-1

Parent Item Name: Wearpad

Start Date: 4/6/2016

Required Date: 4/21/2016

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev:A New Issue 07-02-14 JLM
15.10.16 added automated welding DD verf:JLM

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3537-1P		Purchased	No				Each	0.0000		40			
D3537-1P									**				
Wearpad													
M304S16GA		Purchased	No			100	sf	115.4090	0.106	4.463156			
M304S16GA									**				
304/316 Sheet .063													

40 x SP/6-04-7.

APR 01 2016

DAS
13
9-89

Location

Loc Qty

Loc Code

MAT019

115.409

m134067

3.906

m134158

47.503

m134399

64

m134604

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
Handling/Pre ☐	☐	Training ☐	☐	Crimp/Kink/Ripple/Wave ☐	☐	Inspection Incomplete/Unqualified ☐	☐
Material ☐	☐	Use for Testing ☐	☐	Cuffs ☐	☐	Contamination ☐	☐
Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER : ☐			
Misidentified ☐	☐	Past Due ☐	☐				

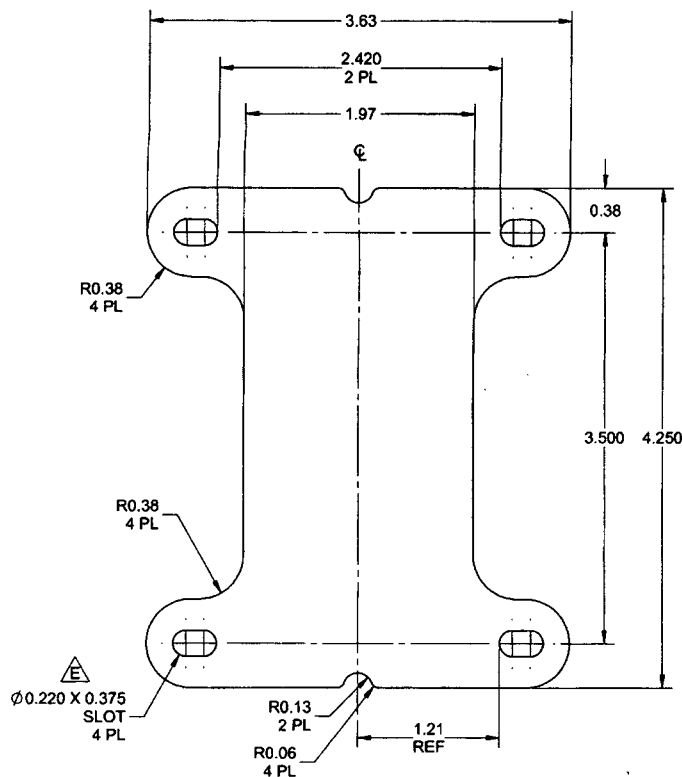
8 7 6 5 4 3 2 1

D

C

B

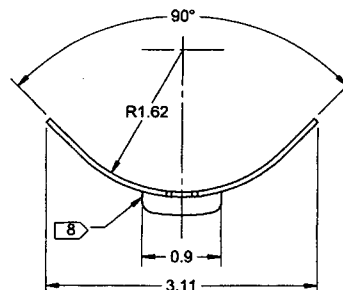
A



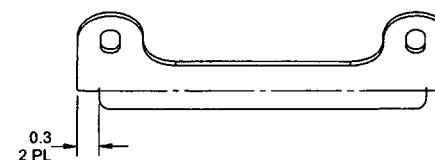
D3537-1F WEARPAD
(FLAT PATTERN)

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL 16 GAUGE 0.063 THICK
PER MIL-S-5059 OR AMS 5513 OR 5524 OR ASTM A240 OR ASME SA240
REF DART SPEC. M304S16GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.42 lbs
- 8) BUILDUP HARD SURFACING 0.17 - 0.20 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR
BUILDUP HARD SURFACING 0.19 - 0.25 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)



D3537-1 WEARPAD
MAKE FROM D3537-1F

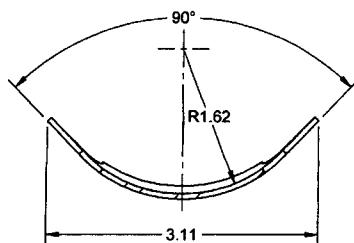


SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. *142912 MWS*
16-03-16

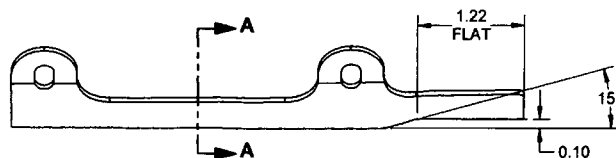
RELEASED
2015-12-07
ECN 15-651

APPROVED

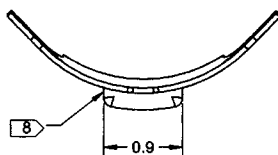
E	5 DELETED PART IS OBSOLETE. RE-FORMAT. NOTE 8 RE-WRITTEN FOR ROBOTIC WELDING. SHEETS 1 & 2 SLOT DIMENSION UPDATED.	AJS	15.09.28
D	RE-FORMAT DRAWING, ADD -9/-11 WEARPADS	DB	14.10.16
C	WIDEN TAB TO 0.380, WEL PATTERN	CB	07.04.13
B	ADD AMS5510 AND AMS 5524	CB	07.03.20
A	NEW ISSUE	CB	06.11.06
REV.	DESCRIPTION	BY	DATE
DESIGN	CB	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	JLM	D3537	SHEET 1 OF 5
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPAD	NTS
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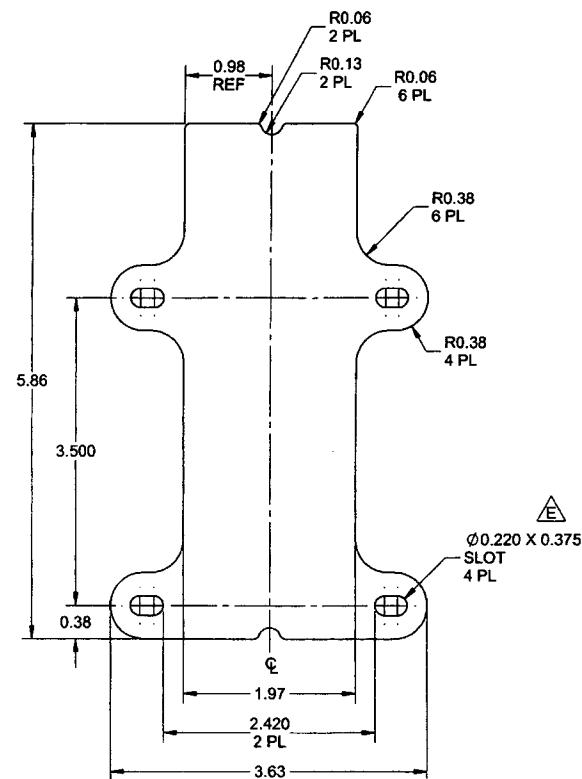
SECTION A-A



**D3537-3 WEARPAD
(BENDING DETAIL)
(MAKE FROM D3537-3F)**



**D3537-3 WEARPAD
(WELDMENT)**



**D3537-3F WEARPAD
(FLAT PATTERN)**

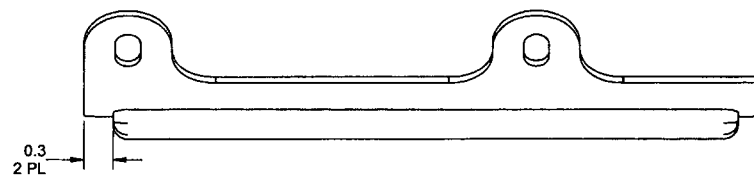
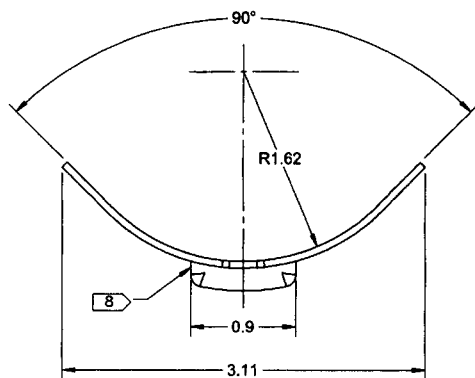
NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL 16 GAUGE 0.063 THICK
PER MIL-S-5059 OR AMS 5513 OR 5524 OR ASTM A240 OR ASME SA240
REF DART SPEC. M304S16GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.50 lbs
- 8) BUILDUP HARD SURFACING 0.17 - 0.20 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR
BUILDUP HARD SURFACING 0.19 - 0.25 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)

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2015-12-07

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DESIGN	CB	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	JLM	D3537	SHEET 2 OF 5
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPAD	NTS
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D3537-7 WEARPAD
(MAKE FROM D3537-3F)

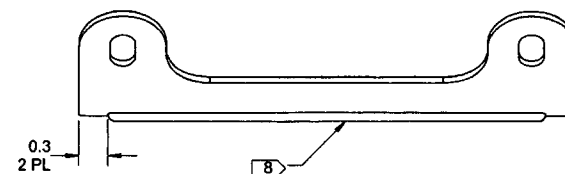
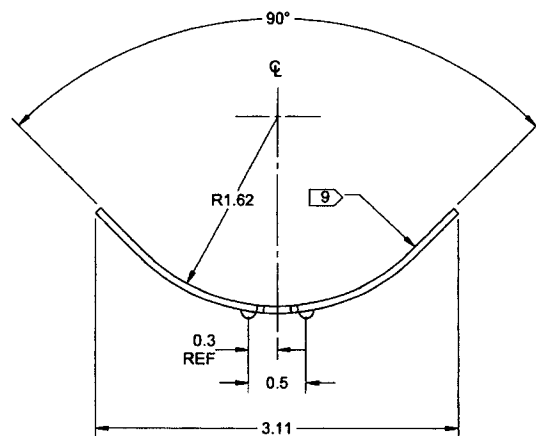
NOTES:

- 1) MATERIAL: MAKE FROM -3F
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.50 lbs
- 8) BUILDUP HARD SURFACING 0.17 - 0.20 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR BUILDUP HARD SURFACING 0.19 - 0.25 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)

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2015 -12- 07

APPROVED

DESIGN	CB	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	JLM	D3537	SHEET 3 OF 5
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPAD	NTS
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D3537-9 WEARPAD
(MAKE FROM D3537-1F)

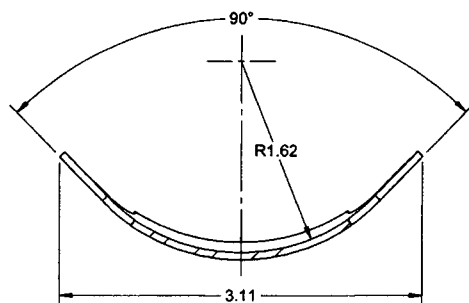
NOTES:

- 1) MATERIAL : MAKE FROM -1F
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.19 lbs
- 8) APPLY HARD SURFACING WELD BEAD 0.06 - 0.13 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR APPLY HARD SURFACING WELD BEAD 0.06 - 0.13 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)
- 9) COAT ENTIRE TOP (CONCAVE) SURFACE WITH TEXTURED COATING, 0.02-0.04 THICK, PER DART QSI 005 4.9

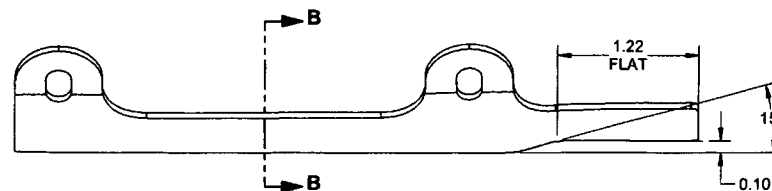
RELEASED
2015 -12- 07

APPROVED

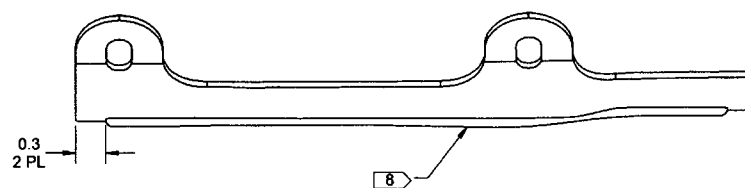
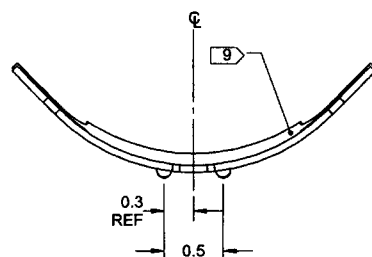
DESIGN	CB	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	JLM	D3537	SHEET 4 OF 5
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPAD	NTS
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SECTION B-B



D3537-11 WEARPAD
(BENDING DETAIL)
(MAKE FROM D3537-3F)



D3537-11 WEARPAD
(WELDMENT)

NOTES:

- 1) MATERIAL: MAKE FROM -3F
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.25 lbs
- 8) APPLY HARD SURFACING WELD BEAD 0.06 - 0.13 THICK USING 8259 ROD PER QSI 004 SECTION 4.5 (AUTOMATED WELDING) OR APPLY HARD SURFACING WELD BEAD 0.06 - 0.13 THICK USING 2059B ROD PER QSI 004 SECTION 4.1 (MANUAL WELDING)
- 9) COAT ENTIRE TOP (CONCAVE) SURFACE WITH TEXTURED COATING, 0.02-0.04 THICK, PER DART QSI 005 4.9

RELEASED
2015-12-07

APPROVED

DESIGN	CB	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR.	JLM	D3537	SHEET 5 OF 5
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WEARPAD	NTS
DATE	15.09.28	COPYRIGHT © 2006 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO31797**

Purchase Order Date 3/23/2016

PO Print Date 3/23/2016

Page Number 2 of 7

Order From :
TPI INDUSTRIES INC.
148 RUE GOODFELLOW
DELSON, QUEBEC J5B 1V4
CANADA

VC-TPI001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 450-633-0484

Ship To Contact
Ship To Phone
Ship Via:
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

3	D2947P ✓	Clamp	4/20/2016 FN	90.00 ✓	\$4.75	\$427.50
			Yes	Each		
			4/20/2016			

CUT AS PER DWG D2947 REV. A
B142690 X 60
B142587 X 30
MATERIAL 304 SHEET 16GA

Line Total: \$427.50

4	D3537-1P ✓	Wearpad	4/20/2016	40.00	\$5.25	\$210.00
			Yes	Each		
			4/20/2016			

CUT AS PER DWG D3537 REV. E
B142912
MATERIAL 304 SHEET 16GA

Sp/6-04-7

Line Total: \$210.00

5	D3564-11P ✓	Wearplate Aft	4/20/2016 FN	10.00	\$24.00	\$240.00
			Yes	Each		
			4/20/2016			

CUT AS PER DWG D3564 REV. D
B142836
MATERIAL 304 SHEET 16GA

Note:

3/23/2016

T.P.I. INDUSTRIES INC.

148 GOODFELLOW
DELSON, QUÉBEC J5B 1V4
CANADA
Tel: (450) 633-0484
Fax: (450) 633-0879

Packing Slip

Packing Slip No.: 7442
Date: 2016-04-05
Page: 1

Sold to:	Ship to:
Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada	Dart Aerospace Chantal Lavoie 1270 Aberdeen Hawkesbury, Ontario K6A 1K7 Canada
Order No.: 31797	Sold By: JONATHAN LESSARD
Shipped By:	Ship Date: 2016-04-05
Tracking No.:	

Item No.	Unit	Description	Quantity
d2947	Chaque	d2947 clamp	90
d3537-1	Chaque	d3537-1 wearpad	40
d3564-11	Chaque	d3564-11 wearplate	10
d3564-5	Chaque	d3564-5 wearplate	6
d4095-041	Chaque	d4095-041 wearplate assy	8
d4095-045	Chaque	d4095-045 wearplate assy	8
d4095-047	Chaque	d4095-047 wearplate assy	4

Sp/16-01-7

Comment: Net / 30 from date of invoice 2% svc. chg. on invoices over 30 days

THYSSENKRUPP MATERIALS NA

DART AEROSPACE

STAINLESS STEEL SHEET 304L-2B DUAL GRADE

.0600 Nom X 48.0000" X 96.0000"

PART NO.

PO/Rel 31741

We certify that this is a true copy of the report
furnished by the producer of the metal, or data
resulting from tests made in approved labs.

Certificate of Mill Test Results

BL PEC-983229-003

21Mar16

Pg 1/1



METALLURGICAL TEST REPORT

North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

740 Imperial Road North

Certificate: 120157 1

Customer: 007206 001

Mail To:

THYSSENKRUPP MATERIALS
2821 LANGSTAFF ROAD
CONCORD, ON L4K5C6

Ship To:

THYSSENKRUPP MATERIALS
2821 LANGSTAFF ROAD
CONCORD, ON L4K5C6

Date: 12/03/2015 Page: 1

Steel: 304/304L

Finish: 2B

Corrosion: ASTM A262/14;18OBend-OK

Your Order: PEC271093

NAS Order: WN 0072789 03

PRODUCT DESCRIPTION:

STAINLESS STEEL COIL, C.R. ANNEALED & PICKLED. UNS 30400/30403
ASTM A240/15a,A480/14b,A666/15;ASME SA240/13,SA480/13,SA666/13
CHEM ONLY ON FOLLOWING ASTM: A276/13,A479/13a,A484/13a,A312/13
CHEM ONLY ON FOLLOWING ASME: SA312/13,SA479/13
AMS 5511H/5513J KMRK; MIL-5059D AMD3(X CRN MEAS); MIL-4043B
NACE MR0175/ISO 15156-3:2009 A, MR0103/07;Q88766D-A X MAG PERM
MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED

REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.
EN 10204:2004 3.1; RoHS 1 & 2 Compliant
Material is Free of Radioactive Contamination
Steel Making Process: EAF, AOD, & Cont. Casting
Product Mfg.by a Quality Mgt.Sys. in Conf. w/ISO 9001
*Melted & Manufactured in the USA; Mat'l is DFARS Compliant

Product Id	Coil #	Skid #	Thickness	Width	Weight	Length	Mark	Pieces	Commodity Code
05X1X2 CA	05X1X2 C		.0575	48.0000	4,950 SHEETS	96.00		64	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS

CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/08

HEAT	CM	C %	CR %	CU %	MN %	MO %	N %	NI %	P %	S %
X1X2	OS	.0216	18.2925	.3910	1.7545	.5130	.0897	8.0095	.0275	.0031
SI %										
.2670										

MECHANICAL PROPERTIES

Product Id#	Coil #	1 d o i c r	UTS KSI	20C .2% YS KSI	20C ELONG %-2"	% Hard RB	Tail Hard
05X1X2 CA	05X1X2 C	F T	97.24	49.89	47.19	87.00	85.00

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

A. Brown

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☒</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☒																																																	
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Description Work Order Deviation				Disposition		DAS 9 9-89 <u>16-04-04</u>																																																																			
Part was outsource to T.P.I. on PO377164 <u>31797</u> . At inspection some holes where found under size. Ref. to NCR 16-5694				• Re work (drill) holes to drawing. • Fill out F.A.I. sheet		Completed By																																																																			
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